

High-dose radiation improves lung cancer survival

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Higher doses of radiation combined with chemotherapy improve survival in patients with stage III lung cancer, according to a new study by researchers at the University of Michigan Comprehensive Cancer Center.

Standard treatment for this stage of [lung cancer](#) - when the tumor is likely too large to be removed through surgery - involves a combination of [radiation therapy](#) with [chemotherapy](#). But, this new study finds, giving chemotherapy at the same time as the radiation enhances the effect of both. Further, increasing the dose of radiation over the course of treatment also increased survival.

"When patients are diagnosed with stage III lung cancer, surgery is often not an option, and survival rates are typically quite low. Finding new ways to improve survival, even in small increments, is crucial," says senior study author Feng-Ming Kong, M.D., Ph.D., associate professor of [radiation oncology](#) at the U-M Medical School and chief of radiation oncology at the Ann Arbor VA Healthcare System.

The study, published in the April 1 issue of the *International Journal of Radiation Oncology*Biophysics*Physics*, looked at 237 patients who had been treated for stage III non-small cell lung cancer at U-M and the VA Ann Arbor.

The researchers compared survival among patients treated with radiation alone, with radiation followed by chemotherapy, and with radiation and

chemotherapy given at the same time. Thirty-one of the patients were also enrolled in a study in which the [radiation dose](#) was increased throughout the course of the treatment.

Patients treated with radiation alone had the worst overall survival rates, living only an average 7.4 months after diagnosis. Adding chemotherapy increased survival to 14.9 months when it was administered after completing radiation and 15.8 months when administered at the same time as radiation. After five years, 19.4 percent of the patients receiving concurrent chemotherapy were still alive, compared to only 7.5 percent of patients receiving sequential chemotherapy.

"Our study shows chemotherapy helps, and high dose radiation helps. But it's challenging to administer these treatments at the same time because of the potential toxicity associated with the high dose radiation," Kong says.

U-M researchers are currently looking at using PET imaging during the course of lung cancer treatment to personalize high dose radiation therapy in many individual patients. As the tumor becomes smaller during treatment, increasing the radiation dose will become more tolerable because it is targeting a smaller area. The U-M researchers believe this strategy could lead to improved treatment outcomes in many patients. Kong currently leads a clinical trial that is following patients through their treatment to look at the impact on survival of increasing radiation dose.

More information: International Journal of Radiation Oncology*Biography*Physics, Vol. 73, No. 5, pp. 1383-1390

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